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DEPARTMENT OF THE ARMY  
U. S. ARMY TRAINING SUPPORT CENTER  
FORT EUSTIS, VIRGINIA 23604-5106

REPLY TO  
ATTENTION OF

ATIC-DMO (350)

14 MAR 1990

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Commercial Training Device Requirement (CTDR) for  
Lightweight Moving Target System (LMTS)

1. Reference Army Regulation 71-9, 20 February 1987, Materiel  
Objectives and Requirements.

2. Subject CTDR has been approved on 12 Mar 90 by HQ TRADOC.  
Implementing instructions applicable to this device are:

- a. System Designation: IPR.
- b. Materiel Developer: AMC.
- c. Combat Developer: TRADOC.
- d. Trainer: TRADOC.
- e. Logistician: USALEA.
- f. Operational Tester: TRADOC.
- g. TRADOC Proponent: U.S. Army Infantry School  
Fort Benning, GA
- h. CARDS Reference Number: 0218R.

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3. The document is forwarded to major Army commands, other  
services, and other DOD agencies for appropriate action. It is  
forwarded to all other addressees for information.

4. Point of contact for this action is Mr. Hal Hansen, AUTOVON  
927-4218/5843.

FOR THE COMMANDER:

Encl

*Thalia B. Church*  
THALIA B. CHURCH  
Captain, AG  
Adjutant General

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CTDR 2

ATIC-DMO

SUBJECT: Commercial Training Device Requirement (CTDR) for  
Lightweight Moving Target System (LMTS)

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COMMERCIAL TRAINING DEVICE REQUIREMENT  
FOR  
LIGHTWEIGHT MOVING TARGET SYSTEM (LMTS)

1. Title:

- a. Lightweight Moving Target System (LMTS)
- b. Cards # 0218R

2. Category:

- a. Armywide:
- b. Over \$15,000.

3. Currently on hand Armywide is an Armor Moving Target Carrier (AMTC) system. The AMTCs are type classified standard and are available on all MultiPurpose Range Complexes (MPRC).

4. Justification:

a. Installations have various types of nonstandard moving target systems. Examples of some of the nonstandard movers are: obsolete M-93 and M-94 Target Towing Machines, modified stationary M151 Jeep engine and drive train coupled with jerrybuilt cable drums and target carrier mounted on steel rails, and modified golf carts.

b. The Army has a requirement to furnish lightweight moving targets for our present and future MultiPurpose Machine Gun Ranges, MK-19 Ranges, Anti-armor Ranges, Portable Remote Target System (RETS) Ranges and augment MPRCs. Currently, the Army has no lightweight type moving target system available for installation on the above listed ranges. Some installations are being forced to install the Army's standard AMTC system in its place. The AMTC is not a cost effective replacement for the LMTS. The AMTC has a very expensive power requirement. It operates on 440/480VAC, three phase commercial power.

c. The training functional improvement is that the weapon system gunners will have a moving target to engage. More significant is the cost savings derived from the LMTS verses the Army's AMTC system. The installation, operation, and maintenance are the cost drivers.

d. All weapon system gunner engagement tasks, conditions, and standards listed in ARTEP 7-8, Mission Training Plans (MTP), can be conducted against the LMTS.

e. Currently, soldiers receive preliminary anti-armor weapons and gunnery training followed by a series of dry fire, subcaliber, and full caliber gunnery exercises employing operational equipment. Sustainment training will include dry fire and subcaliber gunnery exercises (individual and crew) followed by live fire qualification course and battle drills.

f. The LMTS is a cost effective target carrier system that will satisfy institutional, individual, crew, marksmanship, and heavy force modernization gunnery requirements.

## 5. Characteristics:

a. The LMTS must be capable of using Integrated Thermal Signature Target (ITST), Armor Integrated Thermal Signature Target (AITST), and locally fabricated targets up to full-size flank Light Armor/Tank Targets weighing up to 150 pounds and full-size 3-D high fidelity replicas. The carrier will not have a target lifting mechanism mounted on it. The target will be removeable and placed in an upright position. Provisions should be made on the carrier to house the following RETS equipment and other ancillary targetry items: transceiver with cables, visual light hit indicator, hostile fire simulator, target kill simulator, laser target interface device, hit sensors, target thermal modules with harness, and battery packs with cables.

b. LMTS's target carrier must be able to operate on generally level ground with grades up to five percent. If mounted on a dual track rail system, the minimum track length will be 300 meters, and maximum length of 500 meters.

c. LMTS shall operate by generating its own power (vehicle with combustion engine and charging system) or commercial power or stand-alone generator power, not to exceed 220/240VAC.

d. LMTS will be controlled by a Portable (stand-alone) RETS (PRETS) transceiver (radio frequency link-synthesizer programmable frequencies) or by an Enhanced Remoted Target System (ERETS) personal computer linked with a transceiver.

e. LMTS will be able to move left or right and stop by command along the (300 to 500 meters) carrier path. It will have a speed range from 0-40 kph. Speeds will be increased/decreased by the PRETS transceiver or a transceiver linked to the ERET personal computer (in 1 kph increments).

f. The LMTS will be protected by berms in live fire scenarios.

## 6. Distribution/basis of issue shall be as follows:

- a. MultiPurpose MG Range: 1 each
- b. Anti-armor Tracking and Live Fire Range: 4 each
- c. MK-19 MultiPurpose Range: 2 each
- d. Portable Ranges: 2 each
- e. Range Plan Projections:

| LMTS Requirement:      | FY92 | FY93 | FY94 | FY95 |
|------------------------|------|------|------|------|
| MultiPurpose MG Ranges | 5ea  | 1ea  | 3ea  |      |
| Anti-armor Ranges      | 8ea  | 4ea  | 4ea  | 4ea  |
| MK-19 Ranges           | 4ea  |      | 2ea  |      |
| Portable Ranges        |      | 2ea  | 2ea  | 2ea  |
|                        | 17ea | 7ea  | 11ea | 6ea  |

7. Source:

- a. SAAB Systems Inc.  
2254-A Northwest Parkway  
Marietta, GA 30067  
404/955-7050
- b. ATA America Training Aids  
750 Clemson Rd  
Columbia, SC 29223  
803/788-9244
- c. ABA  
PO Box 500  
Pinellas Park, FL 34290-5000  
813/935-4083
- d. Tiesenn, EUROPE
- e. Unisys  
1011 Church St.  
Huntsville, AL  
205/535-2500

8. Cost:

- a. Unit cost: The cost estimate for a LMTS that operates on a dual track with 300 meters of track is approximately \$32,000 (there are other systems that do not require a track).
- b. Quantity: Total number of LMTS to be procured is 41 units.

c. Total Cost: Estimated procurement cost:

| FY92               | FY93      | FY94      | FY95      |
|--------------------|-----------|-----------|-----------|
| \$544,000          | \$224,000 | \$352,000 | \$192,000 |
| Total: \$1,312,000 |           |           |           |

9. Date required:

a. Date required: 2QFY91

b. If the LMTSS are not available for installation on newly constructed ranges, a very costly substitute (AMTC) will have to be used (contracts and construction design plans will have to be modified to add new power requirements).

10. Support organization:

a. The installation Directorate of Engineering and Housing will be responsible for the installation of the LMTS and the Directorate of Plans, Training, and Maintenance will account for, operate, and maintain the LMTS in conjunction with the Directorate of Logistics.

b. Unit level targetry personnel will install and remove video display units daily, conduct visual inspections, daily readiness checks, fault isolation using system self test, replacement of fuses, bulbs, etc., on the following components: downrange sensing unit, transmitter, and target lifting mechanism, video display unit and control unit.

c. Direct support will be nontable of organizational equipment based shops and/or TASC shops and will repair and/or replace inoperative parts.

d. Major components repair will be accomplished by Contractor Logistics Support contract.

11. Impact:

a. Minor construction costs:

(1) Portable installation cost: Minor construction for a protective berm should not exceed \$85,000 (1 ea).

(2) Fixed (hardwired) installation cost: minor construction for protective berm, trenching, and cabling should not exceed \$95,000 (1 ea).

(3) Military Construction Army (MCA) costs are dependent on review of each range being equipped.

(4) Estimated construction cost:

| FY92        | FY93      | FY94        | FY95      |
|-------------|-----------|-------------|-----------|
| \$1,615,000 | \$645,000 | \$1,025,000 | \$550,000 |

b. Maintenance personnel requirements:

(1) Maintenance time requirements for one LMTS per year is estimated to be 120 man-hours (includes normal operating and preventive maintenance). DS/GS man-hour cost for labor is \$19.00 an hour (120 hr x \$19.00 = \$2280 per one LMTS per year). Personnel cost for 41 LMTS for one year is \$93,480.

(2) There is no requirement for a dedicated operator. The LMTS will be a downrange moving target system as part of the range's overall targetry. Each range will be controlled by either a person operating the RETS portable range transmitter or the standard RETS Range Control Station.

(3) Maintenance cost:

| FY92     | FY93     | FY94     | FY95     |
|----------|----------|----------|----------|
| \$38,750 | \$54,710 | \$79,790 | \$93,470 |

(4) The LMTS will be incorporated into the operations and supply accountability for the entire range complex.

c. The LMTS will replace the RETS's Armor Moving Target Carrier (AMTC) programmed for the ranges listed in paragraph 4b above.

d. There will be no special transportation requirements for the LMTS.

12. Spare parts:

a. Drive unit: \$20,000 (motor \$6,000, electronics \$6,000, drive train \$5,000, frame \$2,000) one spare for every five LMTS.

b. Carrier: \$7,000 one spare for every five LMTS.

c. Track assembly: \$5,000 one spare for every five LMTS.

| d. Spare parts cost: | FY92     | FY93     | FY94     | FY95     |
|----------------------|----------|----------|----------|----------|
|                      | \$96,000 | \$32,000 | \$64,000 | \$32,000 |

13. Special tools: There will be no special tool requirement.

14. Funding summary: Funded as a trade-off for the AMTC within the RETS program.



|                    | FY92        | FY93      | FY94        | FY95      |
|--------------------|-------------|-----------|-------------|-----------|
| a. Investment OPA: | 17ea        | 7ea       | 11ea        | 6ea       |
|                    | \$544,000   | \$224,000 | \$352,000   | \$192,000 |
| b. Maintenance:    | \$38,750    | \$54,710  | \$79,790    | \$93,470  |
| c. MCA (Minor):    | \$1,615,000 | \$645,000 | \$1,025,000 | \$550,000 |
| d. Spare Parts:    | 15ea        | 5ea       | 10ea        | 5ea       |
|                    | \$96,000    | \$32,000  | \$64,000    | \$32,000  |
| e. Total cost:     | FY92        | FY93      | FY94        | FY95      |
|                    | \$2,293,750 | \$955,710 | \$1,520,790 | \$867,470 |
| f. Grand Total:    | \$5,637,720 |           |             |           |

15. POC: Mr. Vince Hartmann, Devices Br, Systems Div, DOTD,  
USAIS, AV 835-1416/5606.

RET1HT29, RETS #1

**ANNEX B**  
**COMMERCIAL TRAINING DEVICE REQUIREMENT**  
**FOR**  
**LIGHTWEIGHT MOVING TARGET SYSTEM**

**DISTRIBUTION PLAN**

| TYPE RANGE         | PROJECT<br>NUMBER | FORM<br>NUMBER | LOCATION               | QUANTITY |
|--------------------|-------------------|----------------|------------------------|----------|
| MG TRANS RG        | 473               | 9408           | FT BRAGG               | 1        |
| M60/SAW            | 22222             |                | FT RICHARDSON          | 1        |
| M60/SAW            | 22221             |                | FT WAINWRIGHT          | 1        |
| MULTIPURPOSE MG RG | 0344800           |                | FT RILEY               | 1        |
| MULTIPURPOSE MG RG | 480028            |                | NGB BOWIE, TX          | 1        |
| MULTIPURPOSE MG RG | 010079            |                | NGB OZARK, AL          | 1        |
| MULTIPURPOSE MG RG | 9151360           | 15136          | CP GREAVES, KOREA      | 1        |
| MULTIPURPOSE MG RG | 280019            |                | CP SHELBY, MS          | 1        |
| MULTIPURPOSE MG RG | 59100             | 5910           | FT SILL, OK            | 1        |
| RANGE 6 UPGRADE    | 269680            |                | TENNENLOKE, USAREUR    | 1        |
| ANTIARMOR RG       | 9151370           | 15137          | CP CASEY, KOREA        | 4        |
| MULTIPURPOSE MG RG | 124400            |                | FT CARSON              | 1        |
| M60/SAW RG         | 9189560           | 18956          | FT MC COY              | 1        |
| M60/M-2            | 491               | 5705           | FT RUCKER              | 1        |
| RG UPGRADE #16     | 137160            |                | WILDFLECKEN, USAREUR   | 1        |
| RG UPGRADE #12     | 137180            |                | WILDFLECKEN, USAREUR   | 1        |
| MULTIPURPOSE MG RG | 9214400           |                | FT LEWIS               | 1        |
| ANTITANK RG        | 19054             |                | PTA, WESTCOM           | 4        |
| MULTIPURPOSE MG RG | 9190420           | 19042          | PTS, WESTCOM           | 1        |
| MK 19              | SB11000           |                | SCHOFIELD BKS, WESTCOM | 2        |
| MULTIPURPOSE RANGE | 248000            |                | FT DRUM                | 1        |
| MK 19              | 213490            |                | FT LEWIS               | 2        |
| MULTIPURPOSE MG RG | 220058            |                | NGB EDWARDS, MA        | 1        |
| ANTIARMOR RG       | 200               | 14429          | FT DRUM                | 1        |
| MULTIPURPOSE MG RG | 248               | 16209          | FT DRUM                | 1        |
| MK 19              | 1240              | 14915          | CP CASEY, KOREA        | 2        |
| ANTITANK           | 431F              |                | FT BENNING             | 4        |
| MULTIPURPOSE MG RG | 69360             | 6936           | FT JACKSON             | 2        |